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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,979	09/15/2003	Charles W. Extrand	2267.841US03	2262
24113	7590	09/30/2004	EXAMINER	
PATTERSON, THUENTE, SKAAR & CHRISTENSEN, P.A. 4800 IDS CENTER 80 SOUTH 8TH STREET MINNEAPOLIS, MN 55402-2100			HODGE, ROBERT W	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/662,979

Applicant(s)

EXTRAND, CHARLES W.

Examiner

Robert Hodge

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

### ***Specification***

2. The disclosure is objected to because of the following informalities: On page 11 line 26 the variable used to refer to the variable for density should be a  $\rho$  instead of a "p". On page 12 line 25 the reference to "g" as the variable for density is improper,  $\rho$  should be used instead.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-32 are rejected under 35 U.S.C. 102(b) as being unpatentable by Reihs et al. WO 0158688 (U.S. Patent Application Publication No. 2003/0108449 is used as the English translation of PCT/EP01/00906 (WO 0158688)), herein after referred to as Reihs et al.

Reihs et al discloses an ultraphobic surface structure having a plurality of hydrophilic areas and a method for producing said ultraphobic surface structure.

Reihs et al. teaches that a surface structure is altered to repel liquid with a plurality of asperities (abstract and paragraph 0001) having a cross-sectional dimension (paragraph 0023) and a ratio of the cross-sectional dimension of the asperities to the spacing dimension of the asperities is less than 0.1 or 0.01 (paragraph 0016) having a rise angle (paragraph 0009) and a uniform height (paragraph 0025), and that the asperities are uniformly shaped, have a uniform pattern (or array pattern) and are uniformly spaced (paragraphs 0012, 0014, 0017, 0019 and 0054). As such the examiner has reason to believe that the properties represented by the recited equations in claims 1, 11-12, 21-22 and 32 would inherently be present in the structures of Reihs et al. Should the case be otherwise, the burden is on the applicant to make an appropriate showing. See MPEP § 2112(III), citing *In re Best*, 562 F.2d 1252, 195 USPQ 430. Reihs et al also teaches that the surface structure can be part of any molded article or can be a flat plate (paragraph 0007), which would include a manifold (normally a flat plate) and that the surface structure can have cationic and anionic properties (paragraph 0028), which are the properties of a bipolar plate. Reihs et al

further teaches that the asperities are projections (paragraph 0022) or cavities (paragraph 0003) having a polyhedral or cylindrical shape or having a generally square cross-section (or a geometric shape) (paragraph 0015). Reihls et al. also teaches a method for producing a component having a surface structure that is altered to repel liquid with a plurality of asperities (abstract and paragraph 0001) by forming a component body (paragraph 0007) and disposing a plurality of asperities on at least a portion of the surface (paragraphs 0013 and 0022-0028). Reihls et al. further teaches selecting at least one dimension for the asperities (paragraph 0023) and determining at least one other dimension for the asperities (paragraph 0019) as well as different processes of disposing the asperities including but not limited to extrusion (paragraph 0003) and chemical etching (paragraph 0053).

5. The recitations in claims 1, 12 and 22 with respect to "a fuel cell stack apparatus" has been given little or no patentable weight, since there is no positive recitation set forth that the component has to be used only in a fuel cell application. The component and technique set forth in the instant claims can be used in more than fuel cell stack applications as shown by the WO document in the 35 USC 102 rejection cited above.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. U.S. Patent No. 6,350,539 to Wood, III et al., teaches components used in a fuel cell with altered surface properties that improve water management

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b. KSV Instruments USA online webpage <http://www.ksvinc.com/> dated December 15, 2001, discloses an equation used to calculate Wetting Tension and Wetting Force and also describes what a contact angle is and how it affects liquid adhesion to a solid surface.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Hodge whose telephone number is (571) 272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RWH 9-23-04

  
BRUCE F. BELL  
PRIMARY EXAMINER  
GROUP 1746